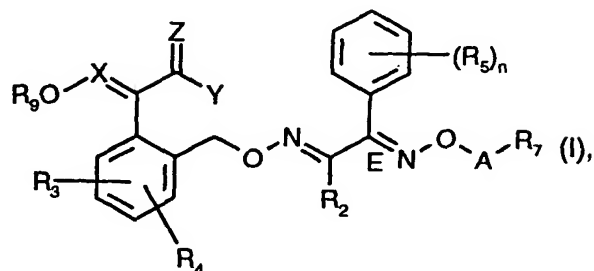


WHAT IS CLAIMED IS:

1. A process for the preparation of a compound of the formula



and, where appropriate, their tautomers, in each case in the free form or salt form, in which either

X is CH or N, Y is OR_1 and Z is O, or

X is N, Y is NHR_8 and Z is O, S or $S(=O)$;

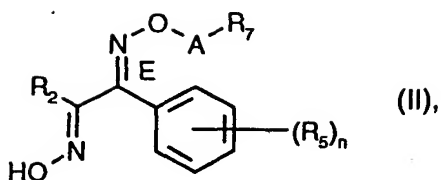
R_1 is C_1 - C_4 alkyl;

R_2 is H, C_1 - C_4 alkyl, halogeno- C_1 - C_4 alkyl, C_3 - C_6 cycloalkyl or C_1 - C_4 alkoxymethyl;

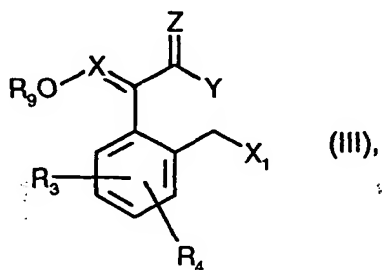
R_3 and R_4 independently of one another are H, C_1 - C_4 alkyl, C_1 - C_4 alkoxy, OH, CN, NO_2 , a $(C_1$ - C_4 alkyl) $_3$ -Si group, where the alkyl groups can be identical or different, halogen, $(C_1$ - C_4 alkyl) $S(=O)_m$, (halogeno- C_1 - C_4 alkyl) $S(=O)_m$, halogeno- C_1 - C_4 alkyl or halogeno- C_1 - C_4 alkoxy;

R_5 is C_1 - C_6 alkyl, halogeno- C_1 - C_6 alkyl, C_1 - C_6 alkoxy, halogeno- C_1 - C_6 alkoxy, C_1 - C_6 -alkylthio, halogeno- C_1 - C_6 alkylthio, C_1 - C_6 alkylsulfinyl, halogeno- C_1 - C_6 -alkylsulfinyl, C_1 - C_6 alkylsulfonyl, halogeno- C_1 - C_6 alkylsulfonyl, C_1 - C_6 alkoxy- C_1 - C_6 alkyl, halogeno- C_1 - C_6 alkoxy- C_1 - C_6 alkyl, C_1 - C_6 alkylthio- C_1 - C_6 alkyl, halogeno- C_1 - C_6 alkylthio- C_1 - C_6 alkyl, C_1 - C_6 alkylsulfinyl- C_1 - C_6 alkyl, halogeno- C_1 - C_6 -alkylsulfinyl- C_1 - C_6 alkyl, C_1 - C_6 -alkylsulfonyl- C_1 - C_6 alkyl, halogeno- C_1 - C_6 -alkylsulfonyl- C_1 - C_6 alkyl, C_1 - C_6 -alkylcarbonyl, halogeno- C_1 - C_6 -alkylcarbonyl, C_1 - C_6 -alkoxycarbonyl, halogeno- C_1 - C_6 -alkoxycarbonyl, C_1 - C_6 -alkylaminocarbonyl, C_1 - C_4 -alkoxyiminomethyl; di(C_1 - C_6 alkyl)-aminocarbonyl, where the alkyl groups can be identical or different; C_1 - C_6 -alkylaminothiocarbonyl; di(C_1 - C_6 alkyl)-aminothiocarbonyl, where the alkyl groups can be identical or different; C_1 - C_6 -alkyl-amino, di(C_1 - C_6 alkyl)-amino, where the alkyl groups can be identical or different; halogen, NO_2 , CN, SF_5 , thioamido, thiocyanatomethyl; an unsubstituted or mono- to tetrasubstituted C_1 - C_4 alkylenedioxy group, where the substituents are selected from the group consisting of C_1 - C_4 alkyl and halogen; or QR_6 , where, if n is greater than 1, the radicals R_5 can be identical or different;

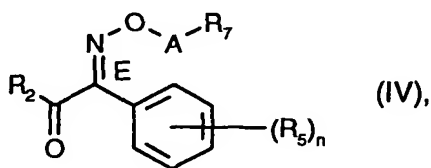
- R_6 is C_2 - C_6 alkenyl or C_2 - C_6 alkynyl, which are unsubstituted or substituted by 1 to 3 halogen atoms; $(C_1$ - C_4 alkyl) $_3$ Si, where the alkyl groups can be identical or different; CN; or an unsubstituted or mono- to pentasubstituted C_3 - C_6 cycloalkyl, aryl or heterocyclyl group, where the substituents are selected from the group consisting of halogen, C_1 - C_6 alkyl, halogeno- C_1 - C_6 alkyl, C_1 - C_6 alkoxy, halogeno- C_1 - C_6 alkoxy, phenoxy, naphthoxy and CN;
- A either is a direct bond, C_1 - C_{10} alkylene, $-C(=O)-$, $-C(=S)-$ or halogeno- C_1 - C_{10} alkylene and R_7 is a radical R_{10} ,
or is C_1 - C_{10} alkylene, $-C(=O)-$, $-C(=S)-$ or halogeno- C_1 - C_{10} alkylene and R_7 is OR_{10} , $N(R_{10})_2$, where the radicals R_{10} can be identical or different, or $-S(=O)_qR_{10}$;
- R_8 is H or C_1 - C_4 alkyl;
- R_9 is methyl, fluoromethyl or difluoromethyl;
- R_{10} is H; an unsubstituted or substituted C_1 - C_6 alkyl, C_2 - C_6 alkenyl or C_2 - C_6 alkynyl group, where the substituents are selected from the group consisting of halogen; $(C_1$ - C_4 alkyl) $_3$ Si, where the alkyl groups can be identical or different; C_3 - C_6 cyclo-alkyl, which is unsubstituted or substituted by halogen; C_1 - C_6 alkoxycarbonyl, which is unsubstituted or substituted by halogen; unsubstituted or substituted aryl, where the substituents are selected from the group consisting of halogen, halogeno- C_1 - C_4 alkyl and CN; a $(C_1$ - C_4 alkyl) $_3$ Si group, where the alkyl groups can be identical or different; C_3 - C_6 cycloalkyl, which is unsubstituted or substituted by halogen; C_1 - C_6 alkoxycarbonyl which is unsubstituted or substituted by halogen; or an unsubstituted or substituted aryl or heterocyclyl group, where the substituents are selected from the group consisting of halogen and halogeno- C_1 - C_4 alkyl;
- Q is a direct bond, C_1 - C_6 alkylene, C_2 - C_6 alkenylene, C_2 - C_6 alkynylene, O, $O(C_1$ - C_6 alkylene), $(C_1$ - C_6 alkylene)O, $S(=O)_p$, $S(=O)_p(C_1$ - C_6 alkylene) or $(C_1$ - C_6 alkylene) $S(=O)_p$;
- m is 0, 1 or 2;
- n is 0, 1, 2, 3, 4 or 5;
- p is 0, 1 or 2; and
- q is 0, 1 or 2,
- and the $C=N$ double bond marked with E has the E configuration, which comprises
- a1) reacting either a compound of the formula



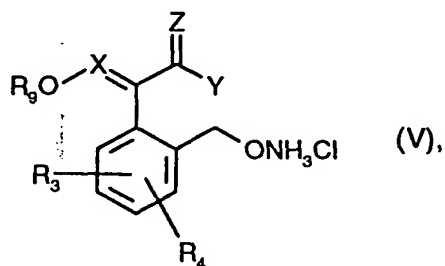
in which A, R₂, R₅, R₇ and n are as defined for formula (I) and the C=N double bond marked with E has the E configuration, or a possible tautomer thereof, in each case in the free form or in salt form, with a compound of the formula



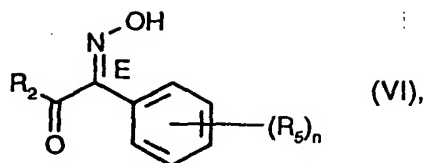
in which X, Y, Z, R₃, R₄ and R₉ are as defined for formula (I) and X₁ is a leaving group, or a tautomer thereof, in each case in the free form or in salt form, or
a2) reacting a compound of the formula



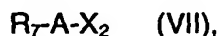
in which A, R₂, R₅, R₇ and n are as defined for formula (I) and the C=N double bond marked with E has the E configuration, or a possible tautomer thereof, in each case in the free form or in the salt form with a compound of the formula



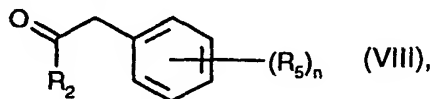
in which X, Y, Z, R₃, R₄ and R₉ are as defined for formula (I), or, if appropriate, a tautomer thereof, in each case in the free form or in salt form, or
b1) reacting a compound of the formula



in which R_2 , R_5 and n are as defined for formula (I) and the $C=N$ double bond marked with E has the E configuration, or a possible tautomer thereof, in each case in the free form or in salt form with a compound of the formula



in which A and R_7 are as defined for formula (I) and X_2 is a leaving group, and either further reacting the compound thus obtainable, of the formula (IV), for example according to method a2), or
b2) reacting it with hydroxylamine or a salt thereof and further reacting the compound thus obtainable, of the formula (II), for example according to method a1), or
c) reacting a compound of the formula



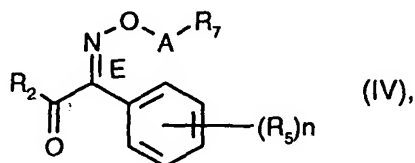
in which R_2 , R_5 and n are as defined for formula (I), or a possible tautomer thereof, in each case in the free form or in salt form with a C_1 - C_6 alkyl nitrite and further reacting the compound thus obtainable, of the formula (VI), for example according to method b).

2. A process according to claim 1 for the preparation of a compound of the formula (I), which comprises reacting a compound of the formula (II) with a compound of the formula (III).
3. A process according to claim 2, wherein a compound of the formula (III) in which X_1 is halogen is used.
4. A process according to claim 2, wherein a compound of the formula (III) in which X_1 is chlorine is used.
5. A process according to claim 2, wherein the reaction is carried out in the presence of a base.

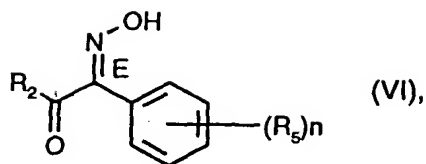
6. A process according to claim 5, wherein the reaction is carried out in the presence of a base selected from the group consisting of alkali metal and alkaline earth metal hydroxides hydrides, amides, alkanolates, acetates, carbonates, dialkylamides and alkylsilylamides.
7. A process according to claim 6, wherein the base is sodium hydride.
8. A process according to claim 2, wherein the reaction is carried out in the presence of a solvent or diluent or of a mixture thereof.
9. A process according to claim 8, wherein the solvent is selected from the group consisting of N,N-dimethylformamide, N,N-diethylformamide, N,N-dimethylacetamide, N-methylpyrrolidone and hexamethylphosphoric acid triamide.
10. A process according to claim 9, wherein the solvent is N,N-dimethylformamide.
11. A process according to claim 2, wherein the reaction is carried out in a temperature range from about 10° to about 30°.
12. A process according to claim 2, wherein the reaction time is between about 0.5 and about 2 hours.
13. A process according to claim 1 for the preparation of a compound of the formula (I), which comprises reacting the compound of the formula (IV), with a compound of the formula (V).
14. A process according to claim 13, wherein the reaction is carried out in the presence of a base.
15. A process according to claim 14, wherein the reaction is carried out in the presence of a base selected from the group consisting of alkali metal and alkaline earth metal hydroxides, hydrides, amides, alkanolates, acetates, carbonates, dialkylamides and alkylsilylamides.
16. A process according to claim 15, wherein the base is sodium hydroxide.
17. A process according to claim 13, wherein the reaction is carried out in the presence of a solvent or diluent or of a mixture thereof.
18. A process according to claim 17, wherein the solvent is selected from the group consisting of methanol, ethanol, propanol, isopropanol, butanol, ethylene glycol and glycerol.
19. A process according to claim 18, wherein the reaction is carried out in methanol.

20. A process according to claim 13, wherein the reaction is carried out in a temperature range from about 10° to about 30°.
21. A process according to claim 13, wherein the reaction time is between about 0.5 and about 2 hours.
22. A process according to claim 1 for the preparation of a compound of the formula (I), which comprises reacting the compound of the formula (VI), with a compound of the formula (VII), and either reacting the compound thus obtainable, of the formula (IV), according to the process according to claim 13, or reacting it with hydroxylamine or a salt thereof, if appropriate in the presence of a basic or acid catalyst, and further reacting the compound thus obtainable, of the formula (II), according to the process according to claim 2.
23. A process according to claim 22, wherein a compound of the formula (VII) in which X₂ is halogen is used.
24. A process according to claim 22, wherein a compound of the formula (VII) in which X₂ is chlorine is used.
25. A process according to claim 22, wherein the reaction of the compound of the formula (VI) with the compound of the formula (VII) is carried out in the presence of a base.
26. A process according to claim 25, wherein the reaction is carried out in the presence of a base selected from the group consisting of alkali metal and alkaline earth metal hydroxides, hydrides, amides, alkanolates, acetates, carbonates, dialkylamides and alkylsilylamides.
27. A process according to claim 26, wherein the base is potassium carbonate.
28. A process according to claim 22, wherein the reaction of the compound of the formula (VI) with the compound of the formula (VII) is carried out in the presence of a solvent or diluent or of a mixture thereof.
29. A process according to claim 28, wherein the solvent is selected from the group consisting of acetonitrile and propionitrile.
30. A process according to claim 29, wherein the reaction is carried out in acetonitrile.
31. A process according to claim 22, wherein the reaction of the compound of the formula (VI) with the compound of the formula (VII) is carried out in a temperature range of about 10° to about 80°.

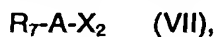
32. A process according to claim 22, wherein the duration of the reaction of the compound of the formula (VI) with the compound of the formula (VII) is between about 0.5 and about 2 hours.
33. A process according to claim 1 for the preparation of a compound of the formula (I), which comprises reacting the compound of the formula (VIII), with a C₁-C₆ alkyl nitrite and further reacting the compound thus obtainable, of the formula (VI), according to the process according to claim 22.
34. A process according to claim 33, wherein the reaction is carried out in the presence of a base.
35. A process according to claim 34, wherein the reaction is carried out in the presence of a base selected from the group consisting of alkali metal and alkaline earth metal hydroxides, hydrides, amides, alkanolates, acetates, carbonates, dialkylamides and alkylsilylamides.
36. A process according to claim 35, wherein the base is sodium methanolate.
37. A process according to claim 33, wherein the reaction is carried out in the presence of a solvent or diluent or of a mixture thereof.
38. A process according to claim 37, wherein the solvent is selected from the group consisting of methanol, ethanol, propanol, isopropanol, butanol, ethylene glycol and glycerol.
39. A process according to claim 38, wherein the reaction is carried out in methanol.
40. A process according to claim 33, wherein the reaction is carried out in a temperature range from about 0°C to about 60°C.
41. A process according to claim 33, wherein the reaction time is between about 0.5 and about 3 hours.
42. A process for the preparation of a compound of the formula



in which A, R₂, R₅, R₇ and n are as defined for formula (I) and the C=N double bond marked with E has the E configuration, which comprises reacting the compound of the formula



in which R_2 , R_5 and n are as defined for formula (I) and the $C=N$ double bond marked with E has the E configuration, with a compound of the formula



in which A and R_7 are as defined for formula (I) and X_2 is a leaving group.

43. A process according to claim 42, wherein a compound of the formula (VII) in which X_2 is halogen is used.

44. A process according to claim 43, wherein a compound of the formula (VII) in which X_2 is chlorine is used.

45. A process according to claim 42, wherein the reaction is carried out in the presence of a base.

46. A process according to claim 45, wherein the reaction is carried out in the presence of a base selected from the group consisting of alkali metal and alkaline earth metal hydroxides, hydrides, amides, alkanolates, acetates, carbonates, dialkylamides and alkylsilylamides.

47. A process according to claim 46, wherein the base is potassium carbonate.

48. A process according to claim 47, wherein the reaction is carried out in the presence of a solvent or diluent or of a mixture thereof.

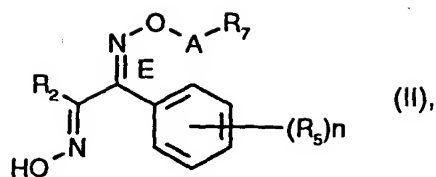
49. A process according to claim 48, wherein the solvent is selected from the group consisting of acetonitrile and propionitrile.

50. A process according to claim 49, wherein the reaction is carried out in acetonitrile.

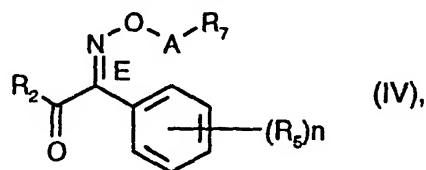
51. A process according to claim 42, wherein the reaction is carried out in a temperature range from about 10° to about 80° .

52. A process according to claim 42, wherein the reaction time is between about 0.5 and about 2 hours.

53. A process for the preparation of a compound of the formula



in which A, R₂, R₅, R₇ and n are as defined for formula (I) and the C=N double bond marked with E has the E configuration, which comprises reacting the compound of the formula



in which A, R₂, R₅, R₇ and n are as defined for formula (I) and the C=N double bond marked with E has the E configuration, with hydroxylamine or a salt thereof.

54. A process according to claim 53, wherein the reaction is carried out with hydroxylamine hydrochloride.

55. A process according to claim 53, wherein the reaction is carried out in the presence of a solvent or diluent or of a mixture thereof.

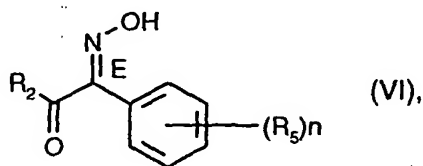
56. A process according to claim 55, wherein the solvent is selected from the group consisting of methanol, ethanol, propanol, isopropanol, butanol, ethylene glycol and glycerol.

57. A process according to claim 56, wherein the reaction is carried out in ethanol.

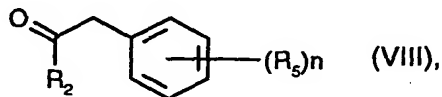
58. A process according to claim 53, wherein the reaction is carried out in a temperature range from about 20° to about 100°.

59. A process according to claim 53, wherein the reaction time is between about 0.5 and about 2 hours.

60. A process for the preparation of a compound of the formula



in which R_2 , R_5 and n are as defined for formula (I) and the $C=N$ double bond marked with E has the E configuration, which comprises reacting the compound of the formula



in which R_2 , R_5 and n are as defined for formula (I), with a C_1 - C_6 alkylnitrite.

61. A process according to claim 60, wherein the reaction is carried out in the presence of a base.

62. A process according to claim 61, wherein the reaction is carried out in the presence of a base selected from the group consisting of alkali metal and alkaline earth metal hydroxides, hydrides, amides, alkanolates, acetates, carbonates, dialkylamide and alkylsilylamides.

63. A process according to claim 62, wherein the base is sodium methanolate.

64. A process according to claim 60, wherein the reaction is carried out in the presence of a solvent or diluent or of a mixture thereof.

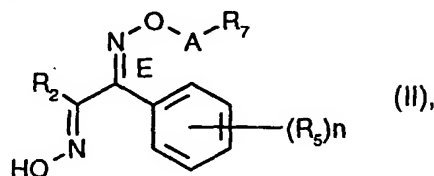
65. A process according to claim 64, wherein the solvent is selected from the group consisting of methanol, ethanol, propanol, isopropanol, butanol, ethylene glycol and glycerol.

66. A process according to claim 65, wherein the reaction is carried out in methanol.

67. A process according to claim 60, wherein the reaction is carried out in a temperature range from about 0° to about 40° .

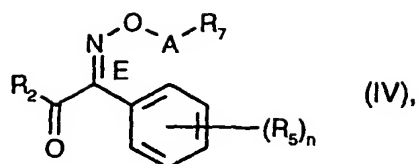
68. A process according to claim 60, wherein the reaction time is between about 0.5 and about 2 hours.

69. A compound of the formula



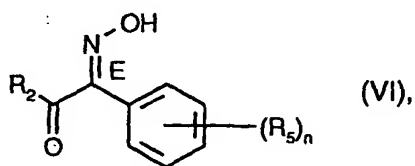
in which A, R_2 , R_5 , R_7 and n are as defined in claim 1 for formula (I) and the $C=N$ double bond marked with E has the E configuration, or if appropriate a tautomer thereof, in each case in the free form or in salt form.

70. A compound of the formula



in which A, R₂, R₅, R₇ and n are as defined in claim 1, for formula (I) and the C=N double bond marked with E has the E configuration, or if appropriate a tautomer thereof, in each case in the free form or in salt form.

71. A compound of the formula



in which R₂, R₅ and n are as defined for formula (I) and the C=N double bond marked with E has the E configuration, or if appropriate a tautomer thereof, in each case in the free form or in salt form.